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REMD. SECTION

Biological Reclamation Process



**WITHOUT
TOPSOIL
STORING OR REPLACEMENT**

Untreated mine spoil.



The most successful procedure to recultivate strip mine spoils to date was developed and patented in Europe. It is called BIOLOGICAL RECLAMATION PROCESS (U.S. Patent Pending), or BRP® for short.

WHAT IS BRP® AND HOW DOES IT WORK

BRP® restores full productivity of the land in a very short time and with high cost efficiency.

NO TOPSOIL HAS TO BE SAVED, STORED AND REPLACED. Instead, the sterile overburden is treated and made fertile in one biological cycle, i.e. in about half a year. BRP® is a topsoil substitution satisfying legal requirements.

BRP® also solves compaction problems, increases water retention and enables the newly created soil to sustain high quality vegetation.

HOW TO APPLY BRP®

BRP® is applied with standard farm machinery, such as farm spreader or blower (on slopes), discs, seeders, compactors, etc.

East Kentucky: Blower distributing BRP mixture to a spoil slope. ▼



►
Ohio:
Broadcasting
BRP mixture by
farm spreader.



BACKGROUND

In 1977, U.S. Congress passed the Surface Mining Control and Reclamation Act (SMCRA), to protect the environment from the effects of surface mining. Consequently, all the important coal producing states have passed similar laws based on the principles of the Federal Act.

The classical procedure prescribed by the SMCRA requires the segregation, storage and replacement of the topsoil up to 48 inches where available. This is a costly and lengthy procedure. It usually takes years to reach the original productivity of the land and the pre-mining quality of the vegetation on the site.

Much research has been done in the past years to find a better alternative to this costly procedure—not only in North America but also in Europe where the surface mining industry faces the same environmental problems.



▲ **Kentucky: Spoil**
site 6 months
later: grass
grown on BRP
treated spoil in
foreground.
Hydroseed spoil
in background
(note difference).

BRP® TECHNOLOGY

BRP® is not simply a mulch, or an alternative recultivation material to topsoil, but a complete technology. Its essence is a special bioactive mixture, developed, patented and tested in Europe for the past 15 years and in the U.S. since 1985.

In addition to the bioactive concentrate, the BRP® mixture contains a high percentage of organic matter (usually lignite, sawdust or plant residues) and ordinary nitrogen, phosphorous and potassium fertilizers. All materials used are safe for the environment and can be supplied locally. They do not contain harmful chemicals, manure, sludge, or sewage.

The most important steps of BRP® application are:

1. Sampling and analysis of the overburden.
2. Adjustment of the process to the local circumstances (climate, soil data, final land use).
3. Preparation, spreading and incorporation of the BRP® mixture.
4. Sowing of grass seeds. For grassland one simple application of BRP® is sufficient for perennial results, unlike with competitive systems that have to be repeated for several years (like Hydroseeding).

5. For forestation and farmland:

- A. Rye or oats or similar crops must be sown.
- B. Additional BRP® mixture is spread when the plants reach 8" to 10" height.
- C. The plants are disked into the ground to enhance the microbiological life.
- D. After two weeks the land is ready to receive the seedlings (for forestry or orchards), crops (for farmlands), or grafts (for vineyards).

ADVANTAGES OF BRP®

1. No necessity for the costly process of segregating, storing and distributing the topsoil.
2. Guaranteed satisfactory revegetation (even of land with low pH values or with difficult contours).
3. Possibility to put the reclaimed land to a more valuable use, e.g. wild-life habitat, hardwood forests or farm land.
4. Considerably faster revegetation than with other existing procedures.
5. Very significant savings in cost.
6. Earlier bond releases due to the faster achievement of a permanent satisfactory vegetation.

OTHER APPLICATIONS FOR BRP®

- Mineral mines and quarries
- Highway landscaping
- Golf courses
- Parks and recreation areas

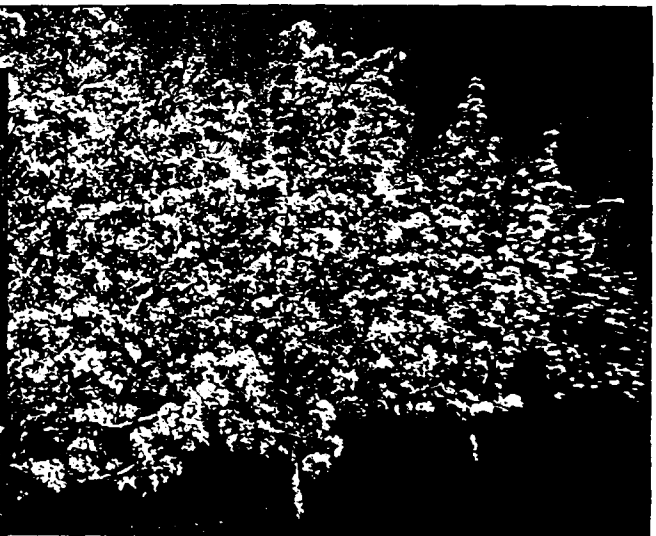
Hungary: 8 year old orchard grown on surface mine spoil ▼



◀ **Kentucky:**
2 months old
cottonwood cutling.



▶ **Kentucky mine:**
1 year black
walnut seedling.





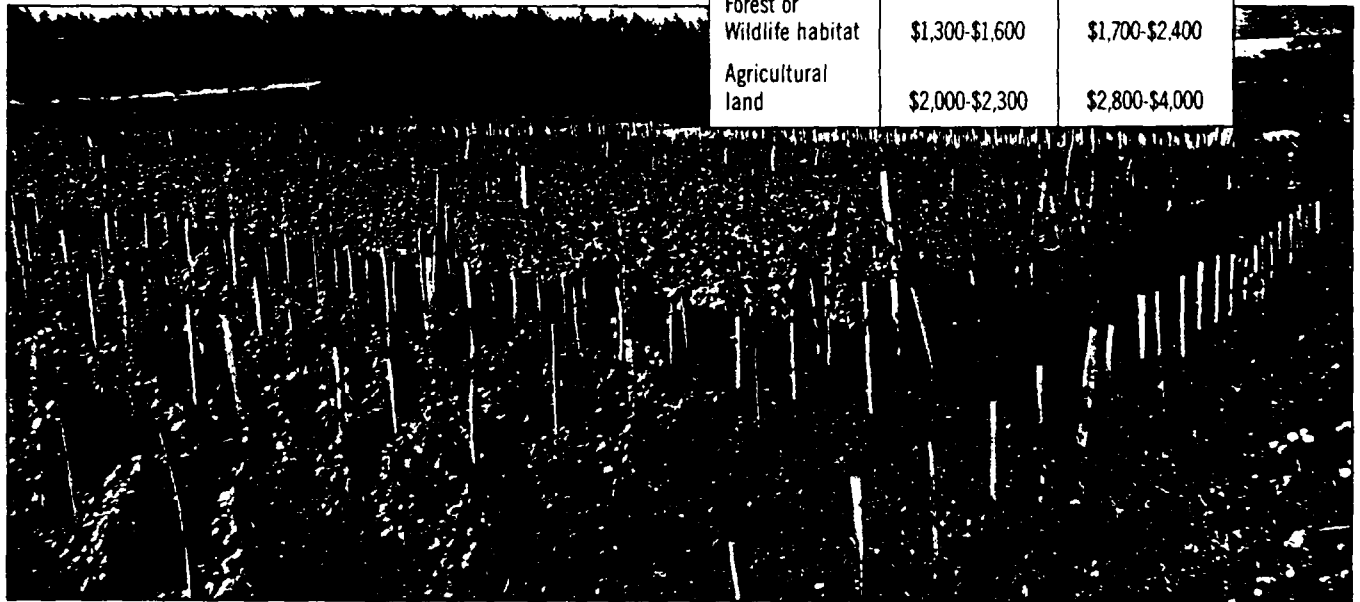
REFERENCES

BRP® has been successfully applied on two continents: Europe and North America. Some references of successfully completed projects are:

- A. Europe: Hungary: from 1970 to date: Matra Coal Mining Company.
Approximately 2,000 acres of cropland, orchards, vineyards, and forests.
- B. USA: since 1985:
Sierra Coal Co., Kentucky
Falcon Coal Co., Kentucky
Golden Oak Coal Co., Kentucky
Pine Branch Coal Co., Kentucky
Hard Dollar Coal Co., Kentucky
Kentucky Prince Coal Co., Kentucky
Ohio Department of Natural Resources,
Abandoned Mined Land Section

Upon request, written or oral testimony from responsible officials of the owner companies can be supplied and the reference sites can be visited.

Visonta, Hungary: 5 year old vineyard in foreground, with 8 year old cottonwood forest in background, both grown on BRP treated reclaimed mine spoil.



FOR FURTHER INFORMATION:

BRP Corp. has several representatives in different geographical regions. Please contact BRP Corp. in New York. We shall forward your inquiry to the proper representative.

COST RANGE

The prices will vary depending on final land use, size of project as well as on climatic and soil conditions.

BRP® Corp. will quote two ways:

- A* *BRP Corp. supplies:* the know-how, the BRP® mixture (including fertilizers) and supervision.
Client supplies: finally graded site, ready for revegetation; all labor, machinery and other materials (seeds, tree seedlings, lime, etc.).
- B* *BRP Corp. supplies:* all labor, machinery and other materials.
Client supplies: finally graded site, ready for revegetation.

	A* Prices per acre	B* Prices per acre
Grassland	\$ 700-\$1,000	\$1,100-\$1,400
Forest or Wildlife habitat	\$1,300-\$1,600	\$1,700-\$2,400
Agricultural land	\$2,000-\$2,300	\$2,800-\$4,000

NORTH AMERICAN LICENSEE FOR BRP®

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